Opening Combination Padlocks

NO TOOLS, NO PROBLEM

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by Carl Black

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Examining the Lock

Throughout this discussion we will be using an American Lock padlock as our main reference lock. There are various other types of padlocks of course: Master Lock, PM, Brinks, Excel, Hampton, etc. Padlocks by American have fewer gates, as will be explained later, and will thus be easier to get started with and practice on.

Figure 1 shows a cross section of a disassembled American lock. One of the best pieces of advice that I can give to anyone interested in lock picking or manipulation is to get to know the lock on a personal basis. Tear it apart and play with it; see for yourself all the pieces and parts and exactly how they work together to operate. Without this visual reference point you are at a great disadvantage. Now, I am not saying that this must be done in order for my method to work; it will work regardless. However, a strong mental picture of what is going on inside while you are working outside is priceless. This knowledge will become useful should any complications arise, as will be explained later. So once again, I strongly suggest that you disassemble a lock or two and become acquainted with them as much as possible.

Those who are somewhat ignorant on lock picking and have

watched too many movies may be under the impression that one can open a combination lock merely by putting one's ear to the lock and listening to the clicking noises made while turning the dial. This I would pay to see. An average combination lock has approximately 64,000 different combinations. Breaking down the number of different combination possibilities will be a main focus of our manipulation technique.

Did you ever notice that when you quickly dialed the combination on your wall locker in high school, or any padlock for that matter, it still opened even though you were a number or so off? There is a reason it still opened. When you look at the dial of your lock, it shows numbers 0 through 39. Unlike a safe, vault, or some other more expensive or complicated lock, the combination padlocks we are exploring do not actually have 40 different numbers, or what we will refer to as "gates." They will usually only have 10 or 12 gates, instantly diminishing the number of possible combinations.

While examining your disassembled lock (see Figure 2), notice the gates that we are referring to. Each gate is separated by a small, raised notch, with one gate being cut out. The gate that has the opening cut out is the true gate; the rest are false gates. If you inspect wheels #1 and #2 (Fig. 1), you will notice a space cut out of them as well, similar to that of the true gate. As you could deduce, when all three of these gates are aligned under the lever, it allows an opening for the lever to fall into when you pull up on the shackle, thus opening the lock.

Using the American padlock in Figure 2 as our example, we find that it has 10 gates—nine false gates and one true gate. So instead of having 40 numbers, as the dial would indicate, in actuality we are only dealing with 10. (Each gate represents four numbers on the dial, which is why the lock will open even if you are a number or so off.)

Principle 1: All combinations are right-left-right.

Principle 2: You must initially turn the dial clockwise at least two full rotations to the right before stopping at the first number. This basically ensures that all wheels have been caught and are spinning and that the previous combination attempt has been erased. (Don't make this seem complicated; you have always given the dial a quick spin or two before starting in on your combination, now you just know why you were doing it.)

Principle 3: The second number in the combination will be at least one full turn to the left past the first number, and at least four numbers less than the first number. This may also sound complicated but it isn't; quick example: if the first number is 20, then after you stop at 20 you have to make at least one full rotation left back past 20, and the second number will be somewhere between 21 and 16 rotating counterclockwise. So you know the second number cannot be 17, 18, 19, or 20. Again, simply because of another mechanical quality of the lock, the combination possibilities have decreased in our favor. The extent of the benefits of this principle will be explained when we start our manipulation technique.

Principle 4: The third number will be less than one full turn to the right of the second number. It will *usually* be at least four numbers less than the second number. This is basically a repeat of Principle 3. If the second number is 10, then after you stop at 10 and start rotating back right, the third number will be somewhere between 9 and 14 rotating clockwise. So the third number will most likely not be 13, 12, 11, or 10.

Principle 5: The combination of numbers will *usually* be low-high-low or high-low-high. This means that the first and second number, or the second and third number will *usually*

The Manipulation Technique

All right, let's get to it. The items that you will need:

A combination padlock
A pen or pencil
A piece of paper

The first thing that needs to be done is to find the gates (refer to Figure 2). Though this can be quickly and easily accomplished, it is a very critical step and requires your attention to detail and accuracy. This can most easily be done by holding the lock in your right hand (if you are right-handed, or whatever is most comfortable), inserting the ring and middle finger of your left hand in the shackle opening and applying an upward force or pressure on the shackle. I recommend starting with the dial on 0 for simplicity.

While pulling up on the shackle try to move the dial back and forth with your right hand. You should be able to feel a slight friction when turning; this is the lever rubbing on the bottom of the gate. You should also only be able to turn the dial one or two numbers before its movement is blocked on both sides. These are the two sides of the gate, which separate it from the next gates.

Some locks will require more or less pull to lower the lever within the gate far enough for you to be able to feel where the gate begins and ends. Tools like vice grips and pipe wrenches shouldn't be needed. If for some reason you are not able to locate the gates no matter how much force you exert, or if you are only able to find one gate, don't give up hope. I will show you some techniques to overcome these dilemmas later on in your reading.

After pulling up on the shackle and rotating the dial back and forth you should have located the first gate. Now, as you are rotating the dial back and forth, look at the numbers that the dial stops at on both sides. With the American lock we are using, the gate walls should be two numbers apart. For illustration, we'll say that the dial's left and right limits are 0 and 2. The centermost point of these limits is what we are after. This will give us the most accurate location of the center of the gate, allowing the least amount of friction and chance of hitting the edge of the gate due to human error when plugging in the combination. So if our first gate started at 0 and stopped at 2, then 1 would put us right in the middle of the gate.

(However, it is possible that your gate starts and stops between two numbers. For example, say it started between the 0 and 1 and stopped at 2½. Not a problem, the same rule applies. Your first gate would still be halfway between the two numbers—1½.)

We will use the example of 1 as our first gate for simplicity. Record your first gate number (1) on the top of your sheet of paper. Now, slightly release the tension on the shackle while slowly turning the dial to the left. Continue to turn the dial to the left until you feel the lever bypassing the right gate wall and entering the next gate. Since this lock has 10 gates, the next gate should be approximately four numbers to the right of the first gate.

Once you have located the position of the second gate, again apply upward tension on the shackle while rotating the dial back and forth to find its left and right limits. We find these limits to be 4 and 6. Once again we want to find the cen-

with the first number (1) and directly beneath it copy down the other gate numbers in order. Next, do the same for your second gate number (5) following the same technique as before. Continue this process until the entire table is completed, as shown in Table 1.

This table represents all the first- and second-number combination possibilities for the lock. The top row shows first-number possibilities and the row of numbers beneath them are the second-number possibilities.

The next thing we need to do is start breaking down the number of combination possibilities as far as we can. This can be done by using the lock principles, probability, and deductive reasoning. Looking at Principle 3, we find we can completely eliminate the last row of numbers as second-number possibilities. Referring to Principle 5, we can determine the probability of the second number being one gate from the first number to be extremely low. This allows us to tentatively eliminate the first row of second-number possibilities. Again, by using Principle 5 and the laws of probability, we can reasonably deduce that the chance of the second number being within two gates of the first number in either direction is also extremely low. We can then tentatively cross out the second and next-to-last row of second-number possibilities.

1st No. Possibilities

1	5	9	13	17	21	25	29	33	37
~~5~~	~~9~~	~~13~~	~~17~~	~~21~~	~~25~~	~~29~~	~~33~~	~~37~~	~~1~~
~~9~~	~~13~~	~~17~~	~~21~~	~~25~~	~~29~~	~~33~~	~~37~~	~~1~~	~~5~~
13	17	21	25	29	33	37	1	5	9
17	21	25	29	33	37	1	5	9	13
21	25	29	33	37	1	5	9	13	17
25	29	33	37	1	5	9	13	17	21
29	33	37	1	5	9	13	17	21	25
~~33~~	~~37~~	~~1~~	~~5~~	~~9~~	~~13~~	~~17~~	~~21~~	~~25~~	~~29~~
~~37~~	~~1~~	~~5~~	~~9~~	~~13~~	~~17~~	~~21~~	~~25~~	~~29~~	~~33~~

MOST PROBABLE 2nd #'S

TABLE 2

same respect, once you have rotated around to the next-to-last gate (21), you can stop and go to the next second-number possibility. This is simply a technique to save a couple of seconds on each rotation. (If this shortcut confuses you at all, disregard it. It does not hurt anything to make an attempt at every gate, it is simply a shortcut should you choose to utilize it. Also, keep in mind that even though it is a lot less probable that the third number falls within these parameters, it is still possible.)

If the lock did not open after trying all the third numbers, make a quick X through the second number you just attempted (13) and move on to the next second-number choice directly below it (17). Keeping the same first number (1), plug in your new second number (17) and begin the same technique as described earlier to find the third number. Turning the dial left to 13 and pulling out on the shackle, turning the dial to 9 and pulling out on the shackle, turning the dial to 5 and pulling out on the shackle, and so on.

Once you have plugged in the first two numbers, rotating and pulling to find the third number should go very quickly. After a couple rotations, you should have the gate numbers memorized and should not have to refer to the table to tell you which numbers to stop on. Turn-pull, turn-pull; with a little practice you should find yourself becoming quite proficient at this procedure.

If the second second-number choice you attempted did not open the lock, proceed to the next one in line (21). Continue this process until you have tried all the second-number choices in that column. Once completed, move on to the next first-number possibility (5). You will now be using 5 as your first number for the next iteration. Use the same sequence of steps as before, starting with 17, then 21, 25, 29, and lastly 33 as your second-number choices. If none of these combinations has opened the lock, continue working across the table in the same manner until it does.

By crossing out the numbers as you try them, you will be better able to keep track of where you are and save valuable time by not having to redial numbers you've already attempted.

If the lock doesn't open after attempting all first- and second-number combination possibilities in the table, go back and try the second and next-to-last second-number possibilities for each first-number possibility that we tentatively crossed out earlier. For example, using 1 as your first number, try 9 and 33 and your second-number choices, and so on down the line. (It is highly improbable that these numbers will be your second number. In the hundreds of locks that I have opened, I have only had it occur a couple of times. It is more likely to occur in Master Locks than in American locks. Anything is possible though, so don't rule it out.)

If you've tried all possible first- and second-number possibilities and the lock has still not opened, one of two things has happened.

1. You made some mistake in calculating the gate locations, or a gate location. Recheck your work, being very attentive to the feel of each gate and figuring their centermost point. Also make sure you did not simply copy down the wrong gate number on your paper. Writing down 15 instead of 17 could definitely make a difference.

2. You made an error while dialing. That is to say, in your quest for speed or simply by mistake, you over- or undershot a number by enough that you were not in the desired gate location and thus the lock would not open.

The only advice I can give here is to start over and be more careful to land more accurately on the desired numbers. This technique *will* open your combination padlock. So if for some reason your lock does not open after attempting all combination possibilities, ensure your gate locations are correct and pay more attention to the accuracy that you turn the dial.

IN REVIEW

1. Accurately find the center of the gates and record them

It is incredibly easy to forget the combination to padlocks on your own tool shed, gym locker, or anyplace else these common locks are found. This handy, no-frills guide teaches you one thing and one thing only: how to open a padlock whose combination is forgotten, lost, or garbled.

Unsatisfied with existing books on padlock manipulation, whose shortcomings caused a lot of useless and time-consuming effort, author Carl Black devised this foolproof system that allows quick entry into all combination padlocks without any guesswork or tools. He explains the tricks of the trade with clear instructions and illustrations and includes troubleshooting tips for difficult locks. Apply this simple method and determine the combination of any padlock in minutes.

For information purposes only.

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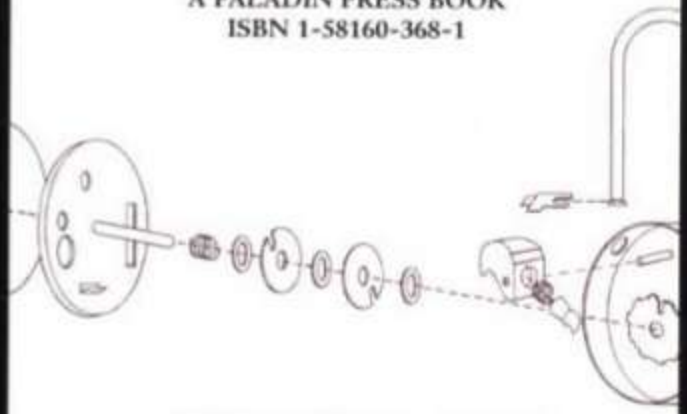

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